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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/529,645	12/05/2005	Masami Miura	2005-0447A	1480

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EXAMINER	
JANAKIRAMAN, NITHYA	
ART UNIT	**PAPER NUMBER**
2123	

MAIL DATE	DELIVERY MODE
10/03/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/529,645	MIURA ET AL.	
	Examiner	Art Unit	
	NITHYA JANAKIRAMAN	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 March 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 March 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3/31/07, 9/24/07, 10/17/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This action is in response to the submission filed on 3/31/2005 which claims foreign priority with priority date 10/4/2002. Claims 1-10 are presented for examination.

Specification

1. The title of the invention is objected to for not being descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

2. The Abstract is objected to for containing greater than 150 words. Applicant is reminded of the proper language and format for an abstract of the disclosure. The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details. The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 5-8 and 10 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

4. Claims 5 and 10 recite a "computer aided design program" comprised of various "processes". Giving the claims a broad reasonable interpretation, the claim constitutes a software system of software *per se*. All depending claims are rejected as well.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. Claim 1 (line 10), claim 5 (line 11), claim 9 (line 10), and claim 10 (line 10) all recite "said mesh", which is previously "a predetermined number of meshes". Consistency is required. All depending claims are rejected as well.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1, 5, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,256,038 ("Krishnamurthy") in view of US 6,201,549 ("Bronskill").

9. Krishnamurthy teaches a computer aided design system for designing curved surfaces. However, Krishnamurthy does not teach defining tangent and normal vectors to the curved mesh surface.

10. Bronskill does teach these limitations *(see Figure 8)*.

11. Krishnamurthy and Bronskill are analogous art because they are both related to the field of CAD design.

12. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the tangent and normal vectors of Bronskill with the CAD system for curved surfaces of Krishnamurthy, motivated by the desire to produce "highly realistic...images" *(Bronskill: column 9, lines 60-67)*.

13. Regarding claims 1, 5, 9 and 10, Krishnamurthy and Bronskill teach:

A computer aided design system *(Krishnamurthy: column 2, lines 28-44)* comprising:
a point sequence information extraction device which extracts a plurality of point sequences on a curved surface *(Krishnamurthy: column 6, lines 39-59 "approximation mesh points"; column 8, lines 6-34, "face-point curve)*;

a dividing device which generates a curved surface from said point sequences using another computer aided design system, and divides said curved surface into a predetermined number of meshes *(Krishnamurthy: column 8, lines 6-34, "polygon mesh", "face-point curve")*;

a first fundamental form computing device for computing coefficients of the first fundamental form defined by a tangent vector which forms a tangent plane of said mesh *(Bronskill: Figure 8, column 6, lines 10-24, "tangent vector", "normal vector")*;

a second fundamental form computing device for computing coefficients of the second fundamental form defined by said tangent vector and a normal vector of said mesh *(Bronskill: Figure 8, column 6, lines 10-24, "tangent vector", "normal vector")*; and

a memory device which stores said point sequence information, said coefficients of the first fundamental form and said coefficients of the second fundamental form *(Krishnamurthy: column 2, lines 28-44, "computer implemented method")*.

Allowable Subject Matter

14. Any indication of allowability of the claims rejected under 35 U.S.C §101 and 35 U.S.C §112 but not on prior art [claims 2-4, 6-8] is being held in abeyance pending the manner in which applicant amends or responds to this rejection under 35 U.S.C §101 and 35 U.S.C §112.

Relevant Prior Art

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

16. US 6,711,530: An original curved surface S is divided into up to six curved surface units by combinations of signs (+, 0, -) of a principal curvature (k_1, k_2) in each point on the curved surface. A distorted curved surface S' is associated with the original curved surface S and divided into curved surface units having the same boundary. An average normal vector is obtained for each curved surface unit with respect to the original curved surface and the distorted curved surface.

17. US 5,636,338: Methods for forming computer models of curves, networks, or surfaces from user defined specifications of the shape to be modeled. Each specification includes a set of geometric constraints, such as positions, tangents curvatures, and torsions, and may also include discontinuity specifications.

18. US 5,497,451: A computerized process for defining finite elements in a surface or volume for ultimately predicting a physical characteristic of the surface or volume. For the surface, for example, the process includes a first step of inputting surface boundary point coordinates of a geometric model of the surface to a computer system, the computer system including an image display screen displaying the geometric model.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NITHYA JANAKIRAMAN whose telephone number is (571)270-1003. The examiner can normally be reached on Monday-Thursday, 8:00am-5:00pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached on (571)272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Nithya Janakiraman/
Examiner, Art Unit 2123

/Paul L Rodriguez/
Supervisory Patent Examiner,
Art Unit 2123